

Amendment of the Claims

Please amend the claims to read as follows:

1. (Currently amended) A pretreatment process for solid ~~sedimentary~~ iron ore lump feed material for a ~~gas and pellet/lump-based moving bed shaft~~ direct reduction processes to reduce the formation of fines, comprising:

storing solid lump feed material in a stockpile for a predetermined time in an open atmosphere, therein releasing ~~in order to release~~ internal stresses of the ~~sedimentary~~ lump ore ores;

pre-drying the lump feed material at a temperature less than 300° C to a water content less than about 0.5% by weight prior to charging the feed material to a gas-based direct reduction furnace[;]

~~increasing the thermal profile of the furnace, to reduce the zone of low temperature reduction;~~

~~thereby minimizing the formation of fines within the furnace.~~

2. (Currently amended) A process according to claim 1, wherein the predetermined time is ~~lump feed material is stored in a stockpile for~~ at least one month.

3. (Previously presented) A process according to claim 1, wherein the lump feed material is pre-dried at a temperature of about 200° C.
4. (Currently amended) A process according to claim 1, wherein said pre-drying is accomplished in a feed storage bin by introduction of waste off-gases ~~at a sufficient temperature to heat the feed material in the storage bin.~~
5. (Currently amended) A process according to claim 4 wherein the waste off-gas temperature is less than 600° C ~~in excess of 300° C~~ upon introduction into the feed storage bin.
6. (Original) A process according to claim 4, wherein said waste off-gases are removed from a reformer associated with the direct reduction process.
7. (Currently amended) Apparatus for ~~pre-drying feed material to a direct reduction shaft furnace~~ utilizing pre-dried iron ore lump feed material, comprising:
 - a direct reduction shaft furnace having an upper feeding and heating portion, a middle gas feeding and reducing portion, and a lower product discharge portion;
 - means for removing hot gas from the furnace;
 - reformer means for reforming removed off-gas, including means for heating the reformer by combustion of gas, and means for removing waste combusted off-gas from the reformer;

a feed material storage bin, said means for removing waste off-gas communicating with said storage bin for heating and drying the contents thereof to a temperature less than 300° C and a water content less than about 0.5% by weight; and

means for transporting the heated feed material to the furnace and for charging the heated feed material into the furnace for reduction.

8. (Original) Apparatus according to claim 7 wherein said feed storage bin is enclosed, and said means for transporting the heated feed material to the furnace is insulated.

9. (Currently amended) A process according to claim 1 further comprising charging the pre-dried iron ore lump feed material into the ~~shaft~~ furnace separately from any lime coated pellet feed material.

10. (Previously presented) Apparatus according to claim 8, further comprising means for adjusting the temperature of the waste combusted off-gas between said means for removing waste combusted off-gas and said feed material storage bin.